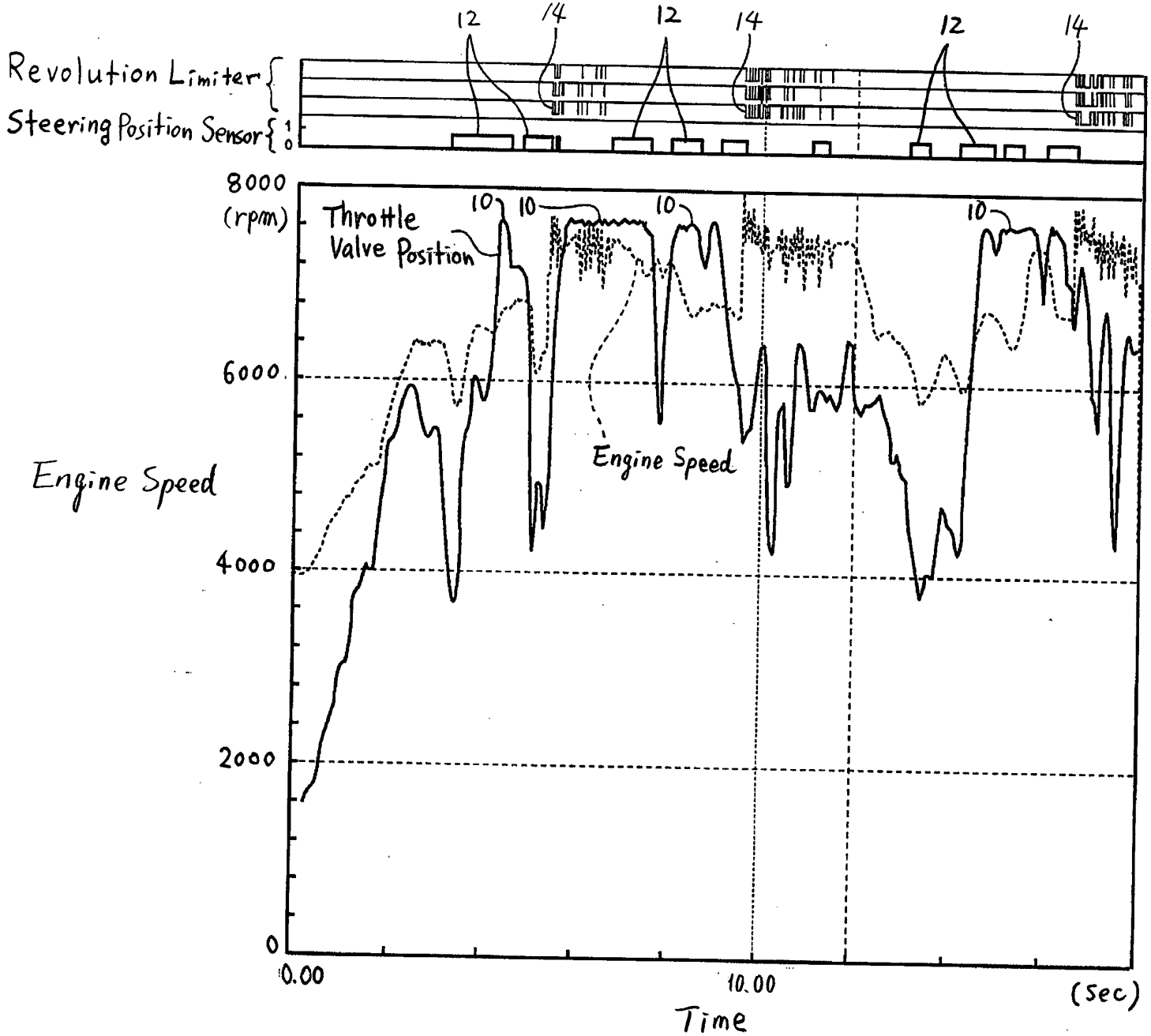

FIGURE 1

ENGINE CONTROL SYSTEM FOR WATERCRAFT
Kinoshita et al.
Appl. No.: Unknown
Atty Docket: FS.20116US1A

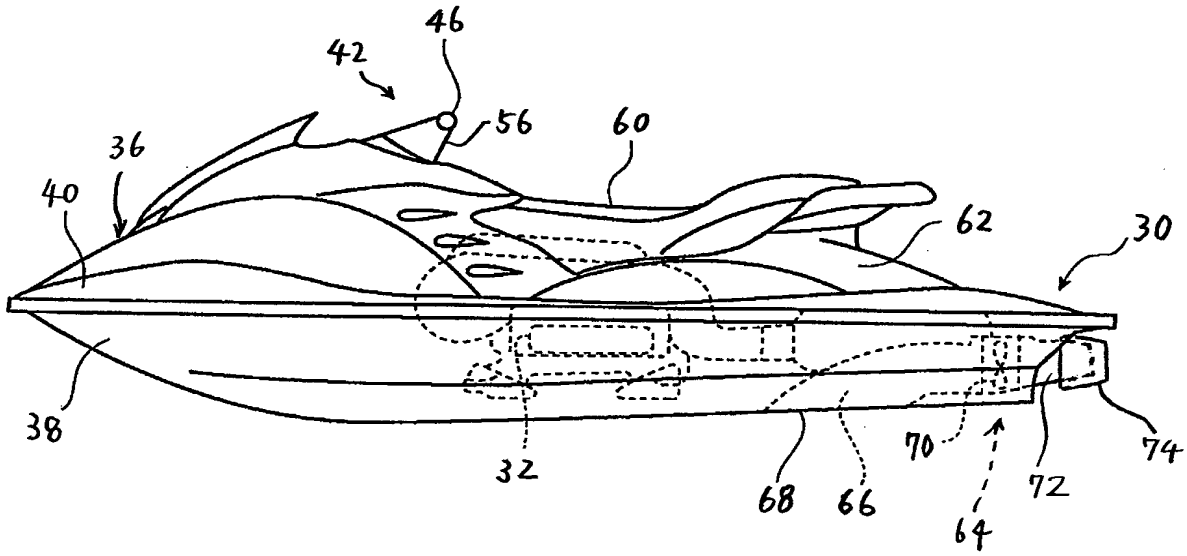

FIGURE 2

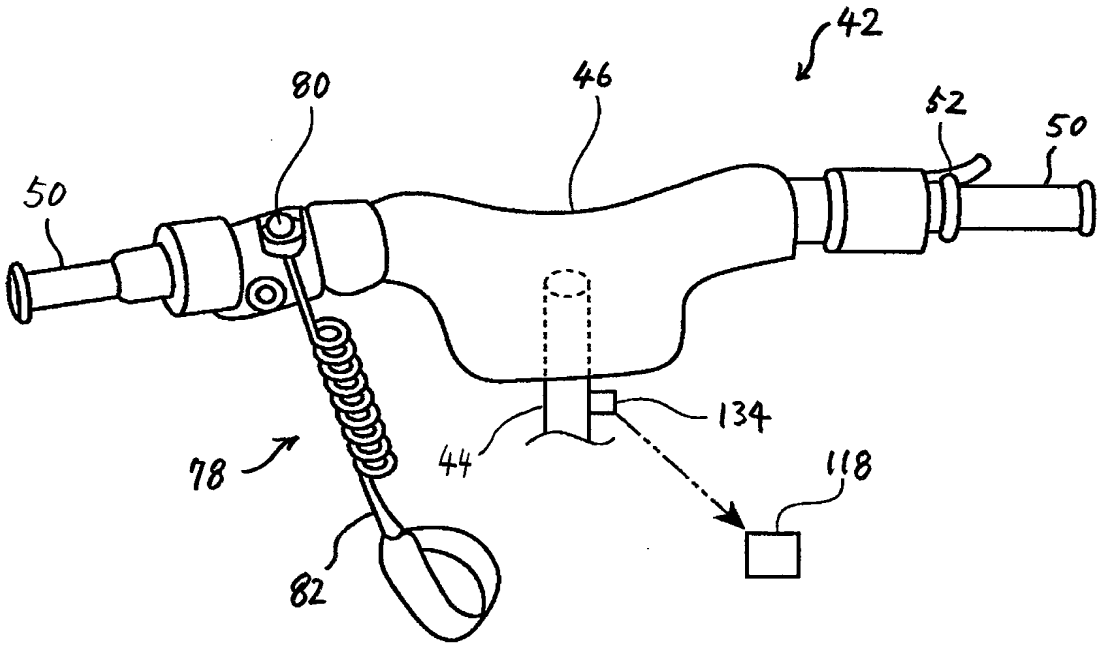

FIGURE 3

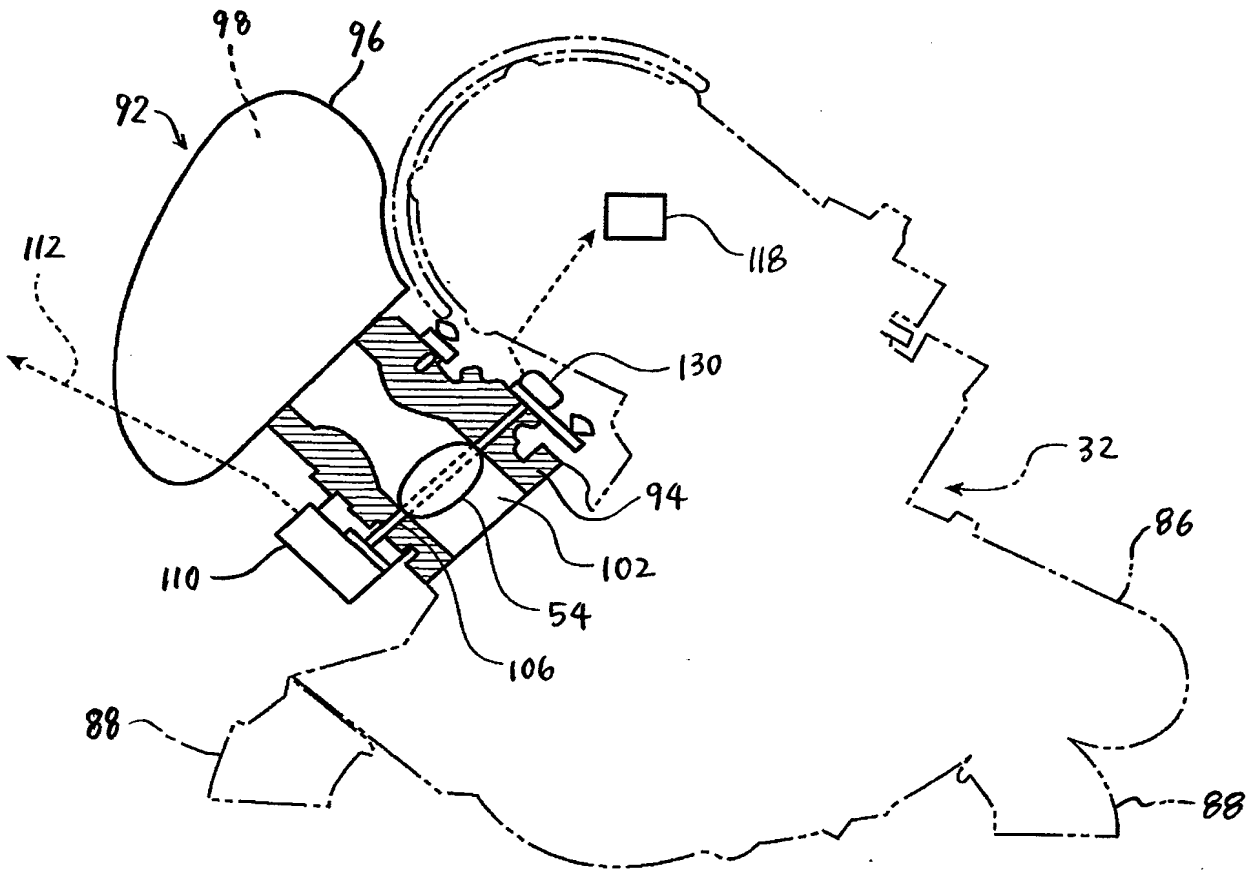

FIGURE 4

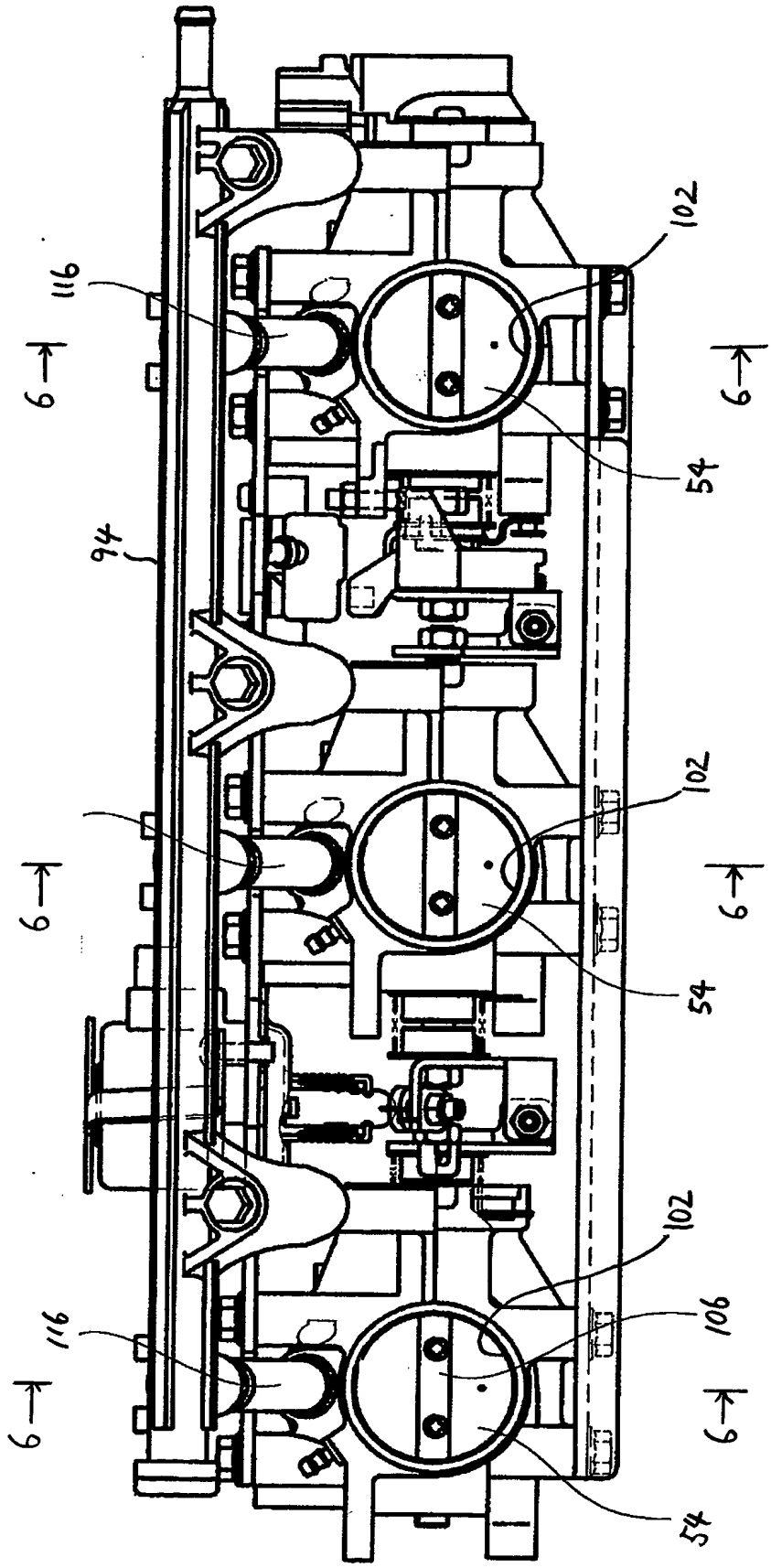

FIGURE 5

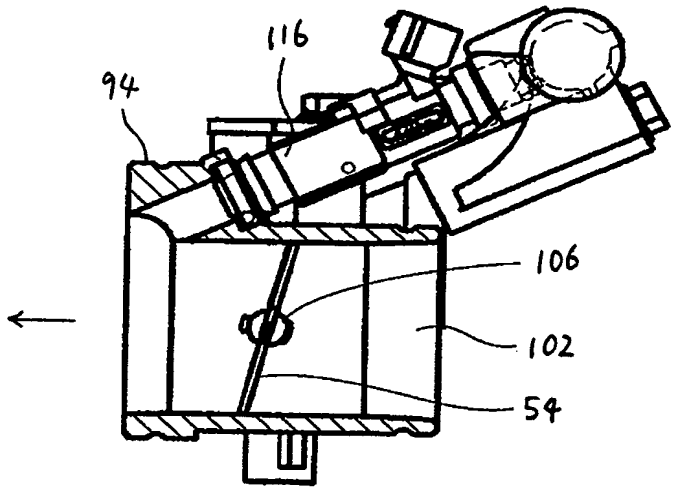

FIGURE 6

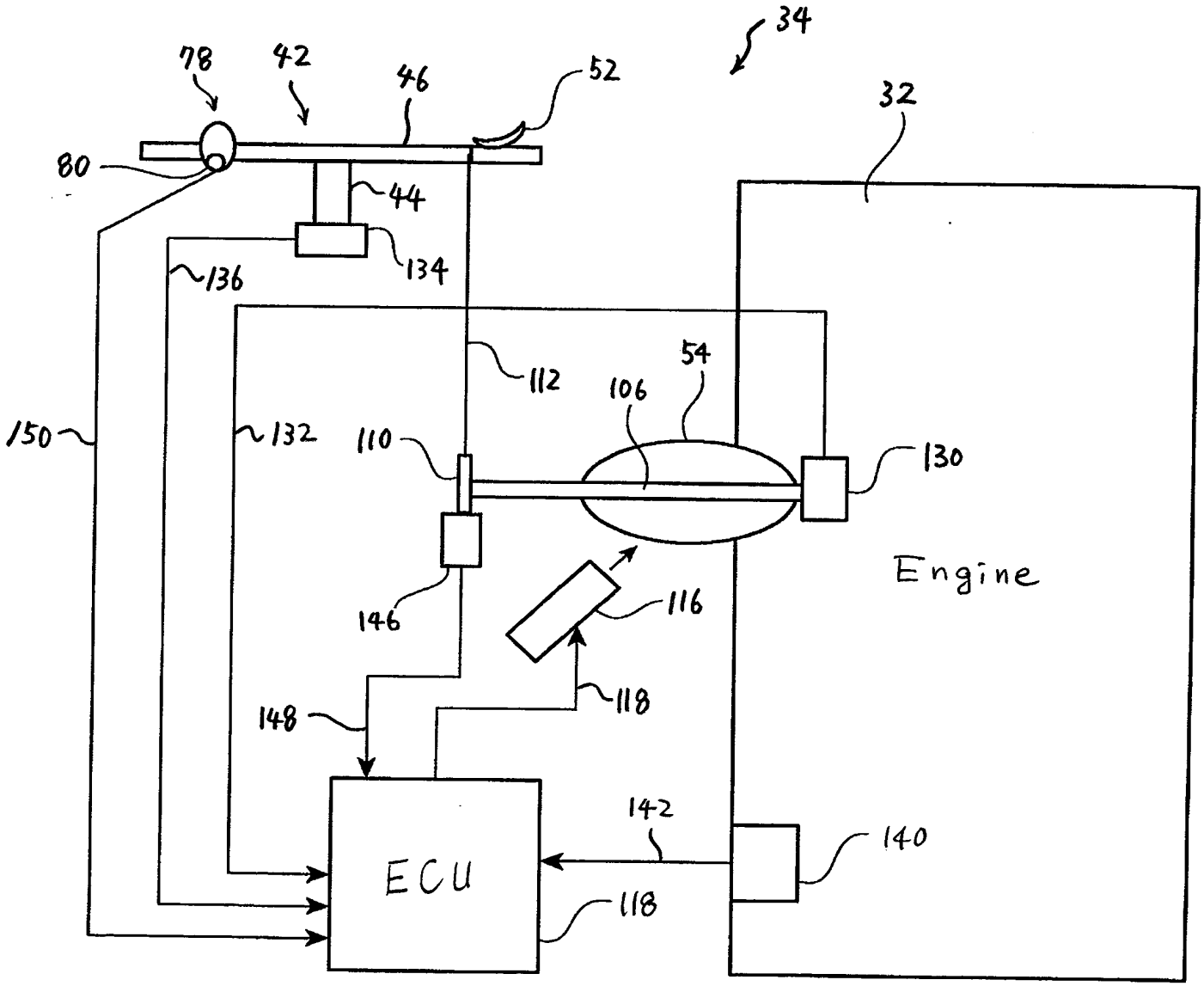
34
78
42
46
52
32
80
44
134
136
112
54
106
150
132
110
130
Engine
146
116
118
148
142
140
ECU
118

FIGURE 7

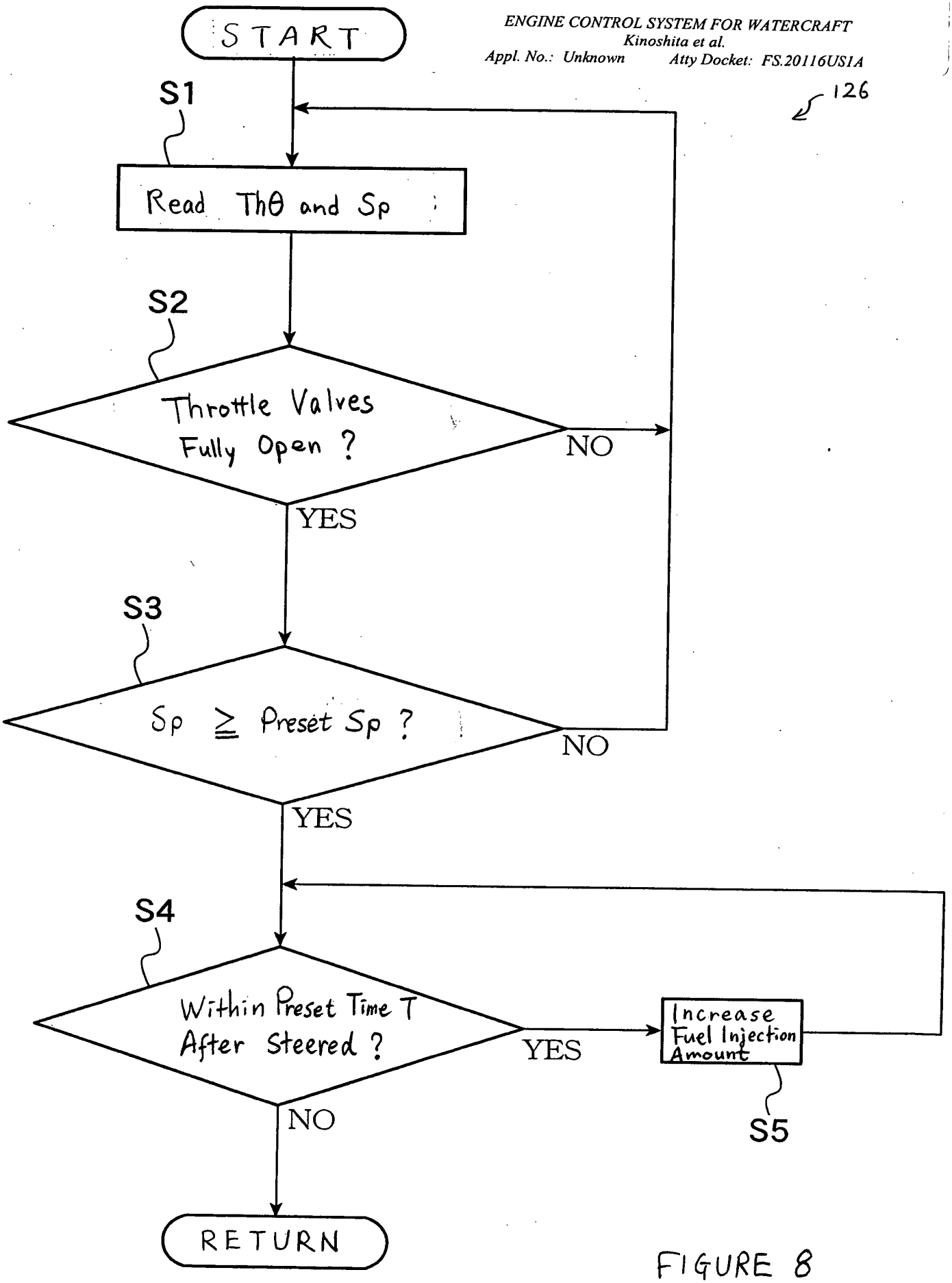
126
START
S1
Read Thθ and Sp
S2
Throttle Valves Fully Open ?
NO
YES
S3
Sp ≧ Preset Sp ?
NO
YES
S4
Within Preset Time T After Steered ?
YES
Increase Fuel Injection Amount
S5
NO
RETURN

FIGURE 8

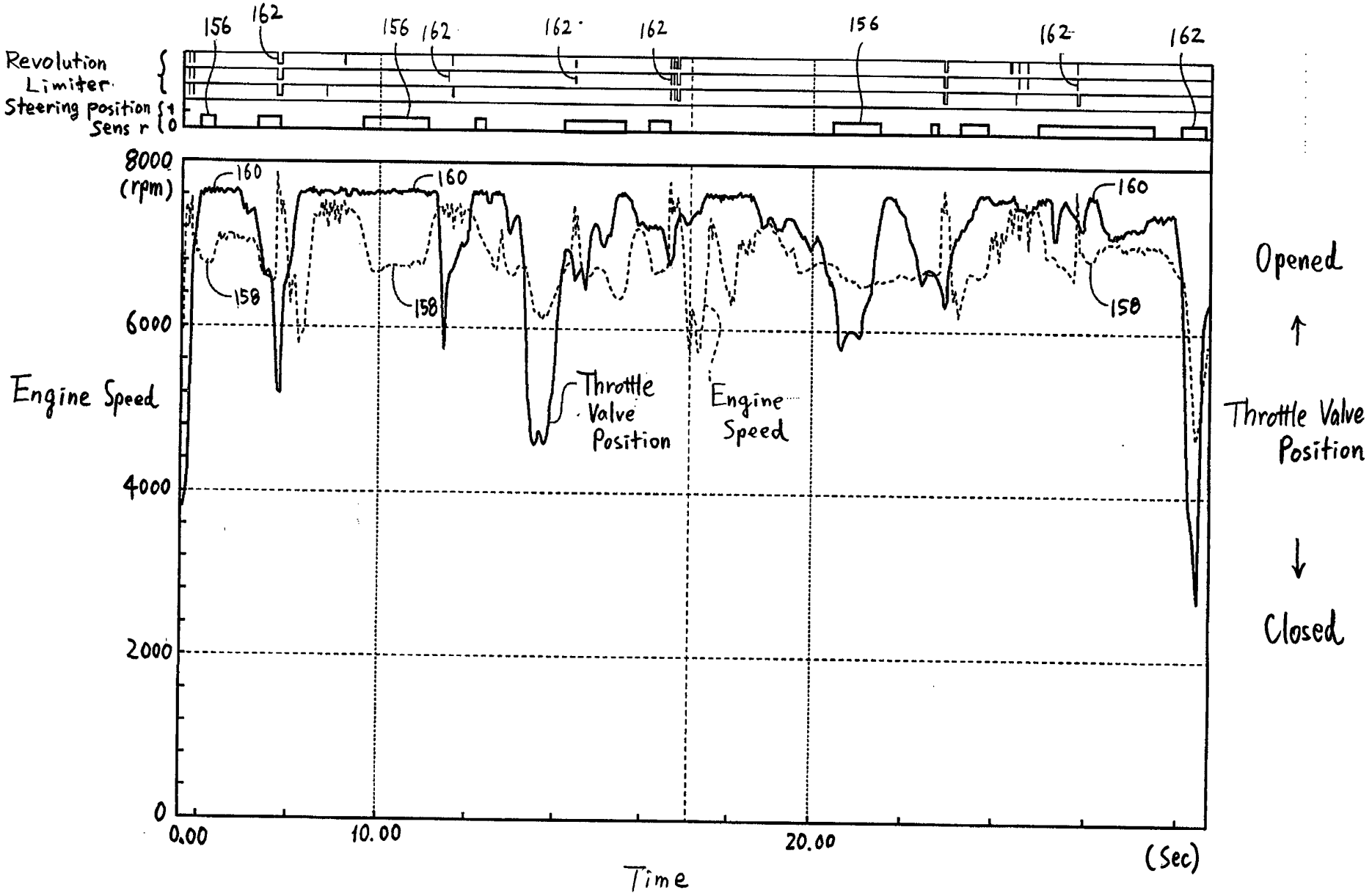
156
162
Revolution Limiter
Steering position Sens r
1
0
8000 (rpm)
6000
4000
2000
0
160
158
Engine Speed
Throttle Valve Position
Engine Speed
Opened
Throttle Valve Position
Closed
0.00
10.00
20.00
(Sec)
Time

FIGURE 9

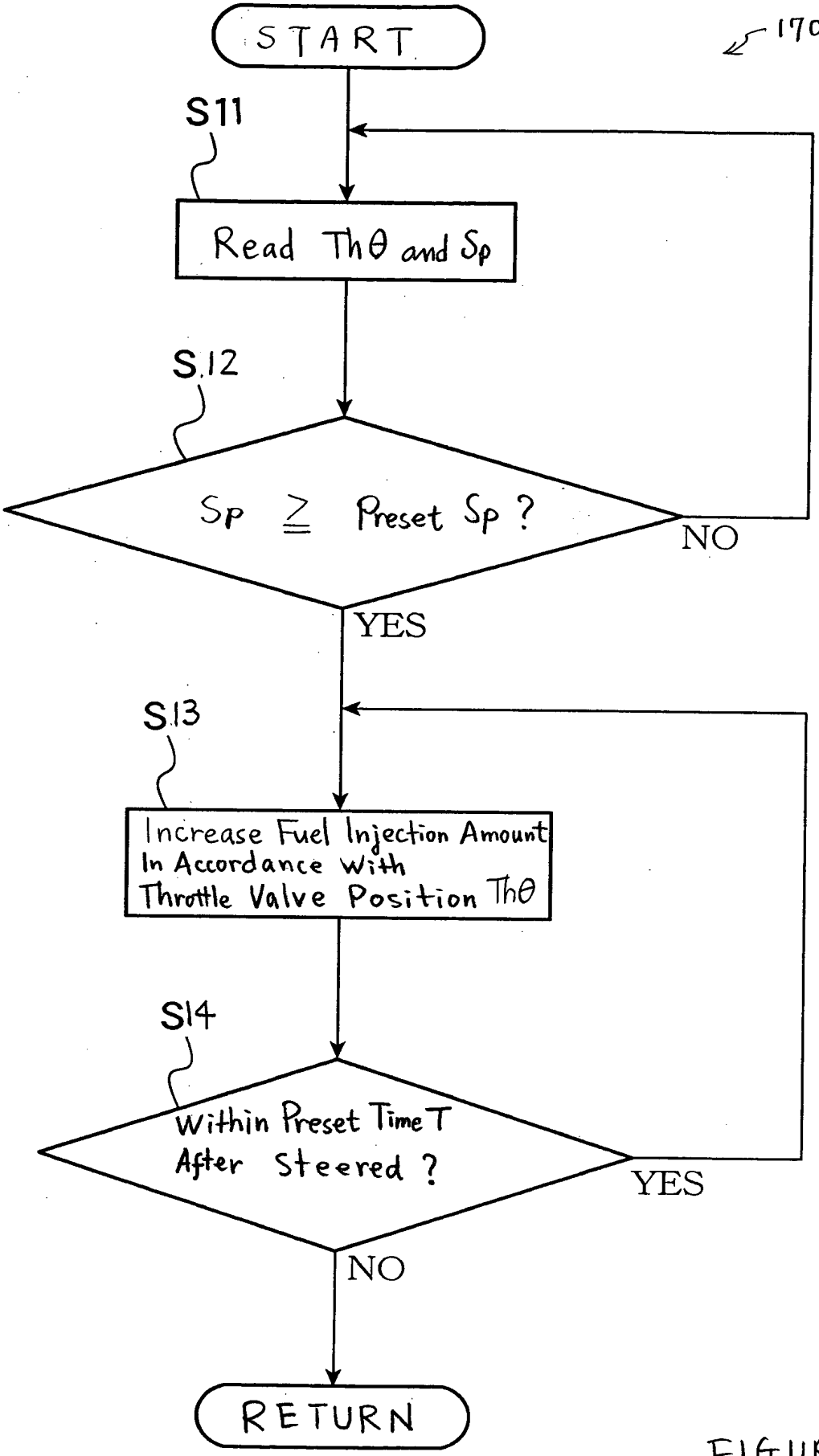
START
170
S11
Read Thθ and Sp
S12
Sp ≧ Preset Sp ?
NO
YES
S13
Increase Fuel Injection Amount In Accordance With Throttle Valve Position Thθ
S14
Within Preset Time T After Steered ?
YES
NO
RETURN

FIGURE 10

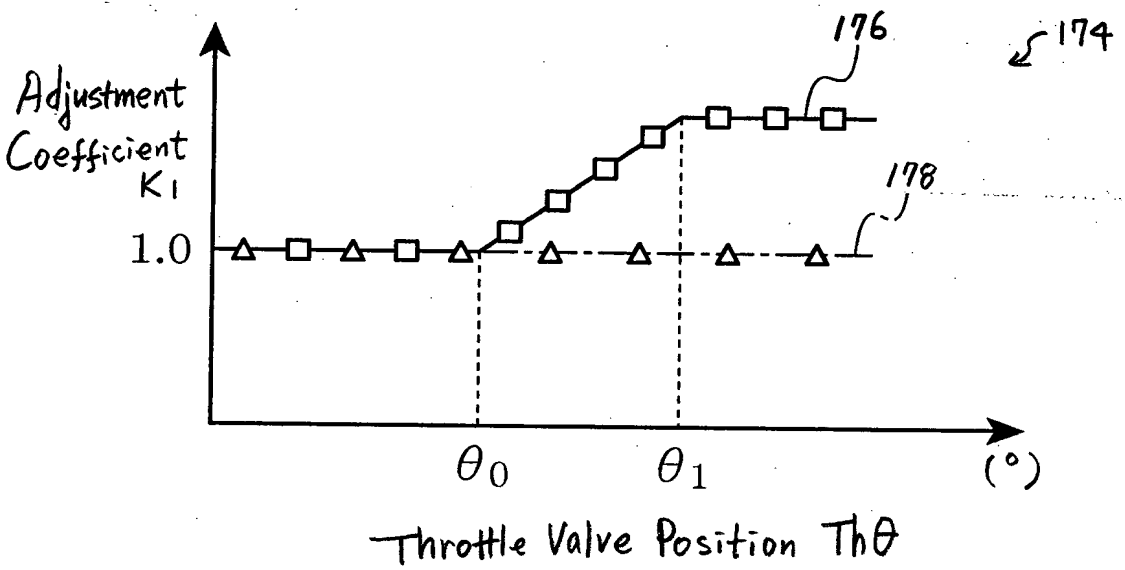
176
174
178
Adjustment
Coefficient
K1
1.0
θ0
θ1
(°)
Throttle Valve Position Thθ

FIGURE 11

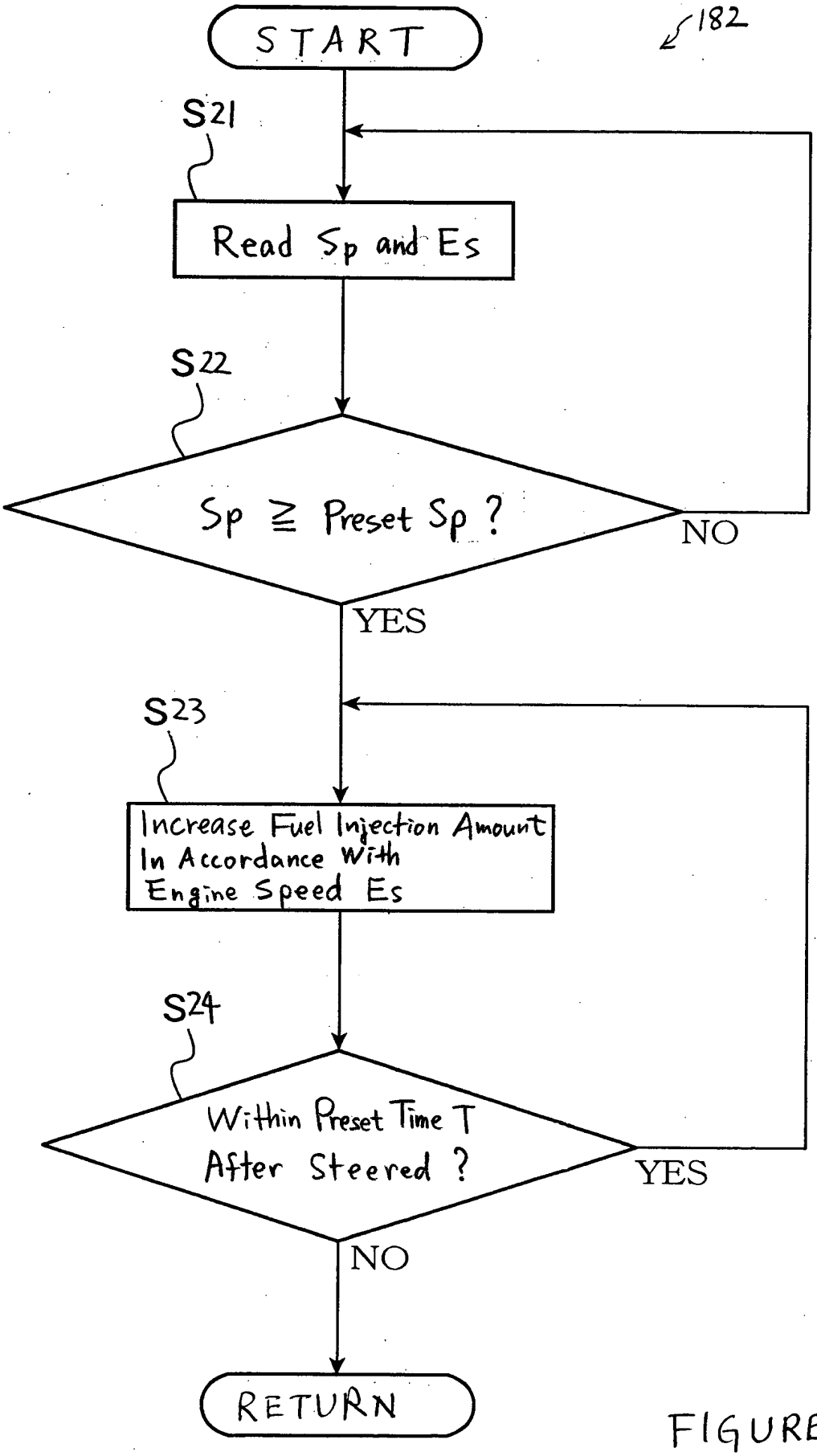
182
START
S21
Read Sp and Es
S22
Sp ≧ Preset Sp ?
NO
YES
S23
Increase Fuel Injection Amount In Accordance With Engine Speed Es
S24
Within Preset Time T After Steered ?
YES
NO
RETURN

FIGURE 12

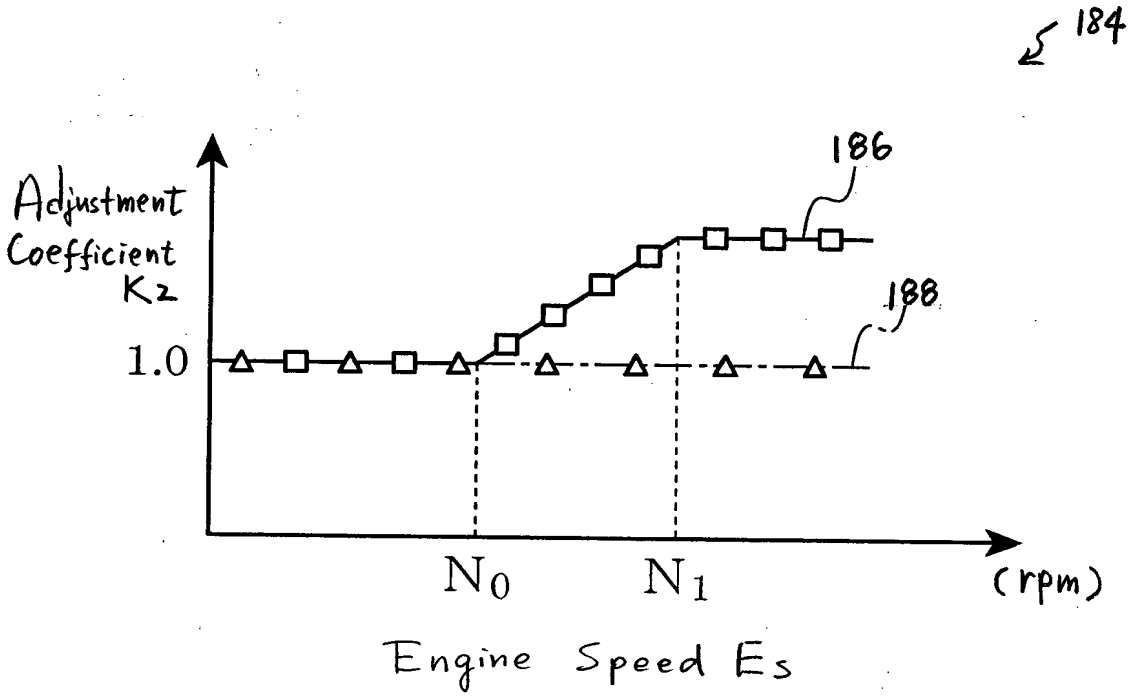
184
186
188
Adjustment
Coefficient
K2
1.0
N0
N1
(rpm)
Engine Speed Es

FIGURE 13

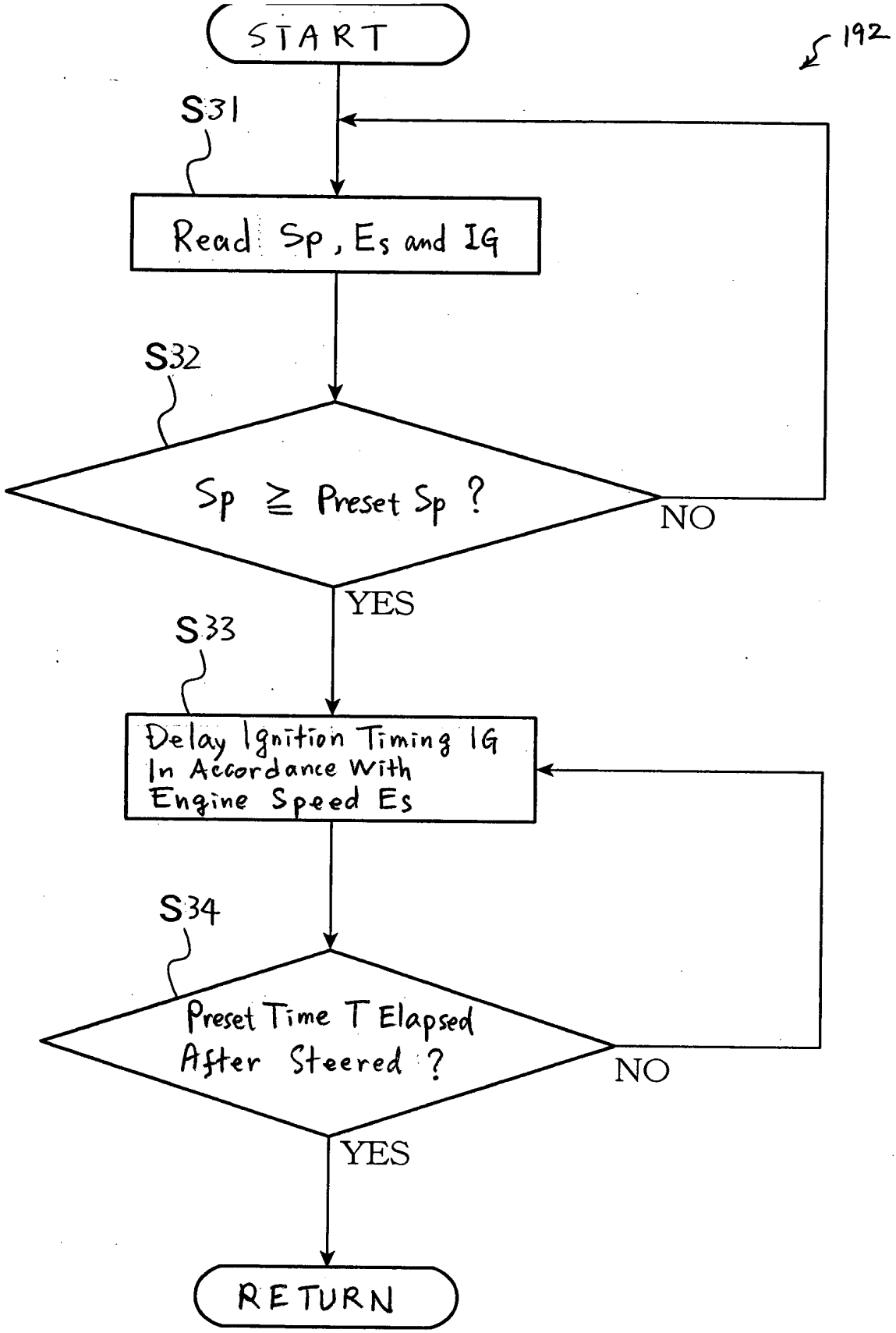
START
192
S31
Read Sp, Es and IG
S32
Sp ≧ Preset Sp ?
NO
YES
S33
Delay Ignition Timing IG
In Accordance With
Engine Speed Es
S34
Preset Time T Elapsed
After Steered ?
NO
YES
RETURN

FIGURE 14

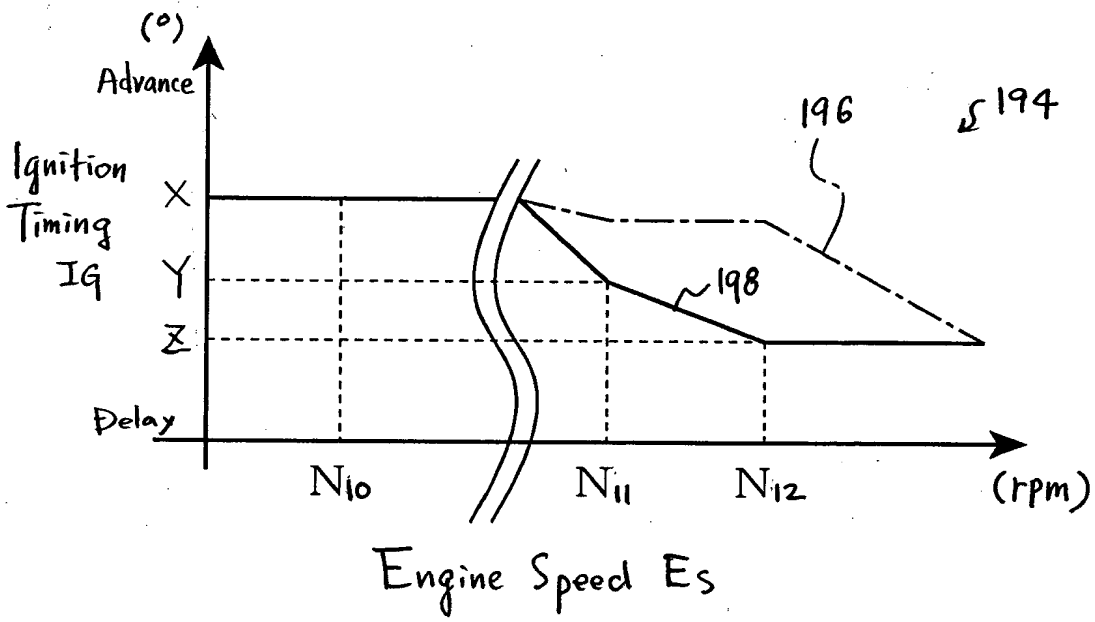
(°)
Advance
Ignition Timing IG
X
Y
Z
Delay
196
194
198
N10
N11
N12
(rpm)
Engine Speed Es

FIGURE 15

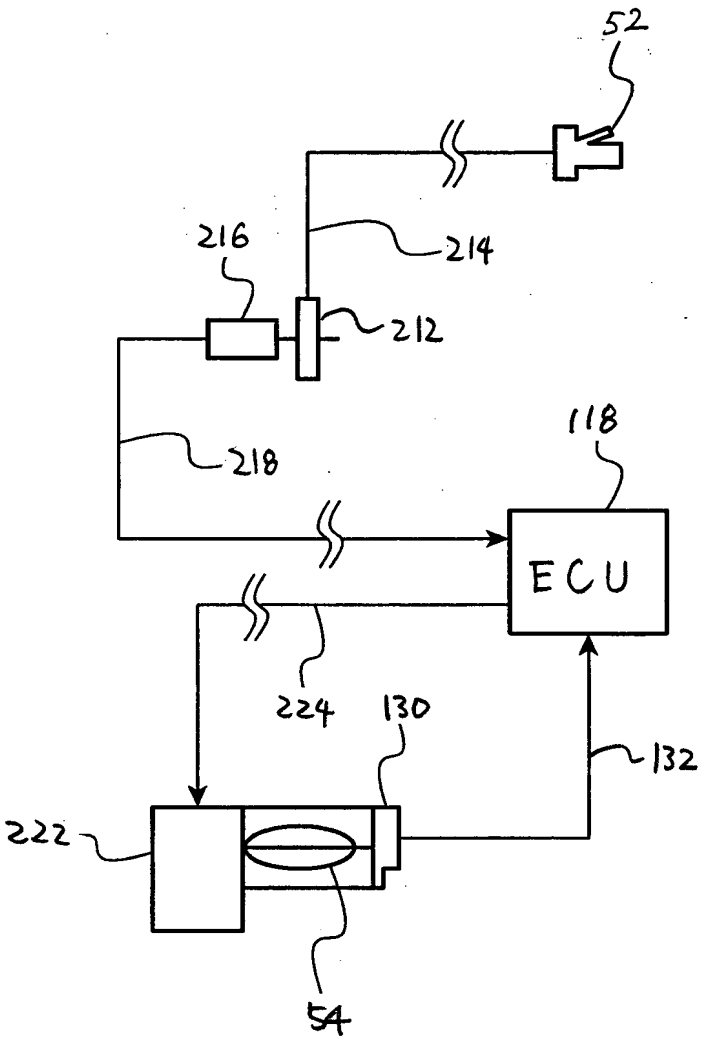

FIGURE 16

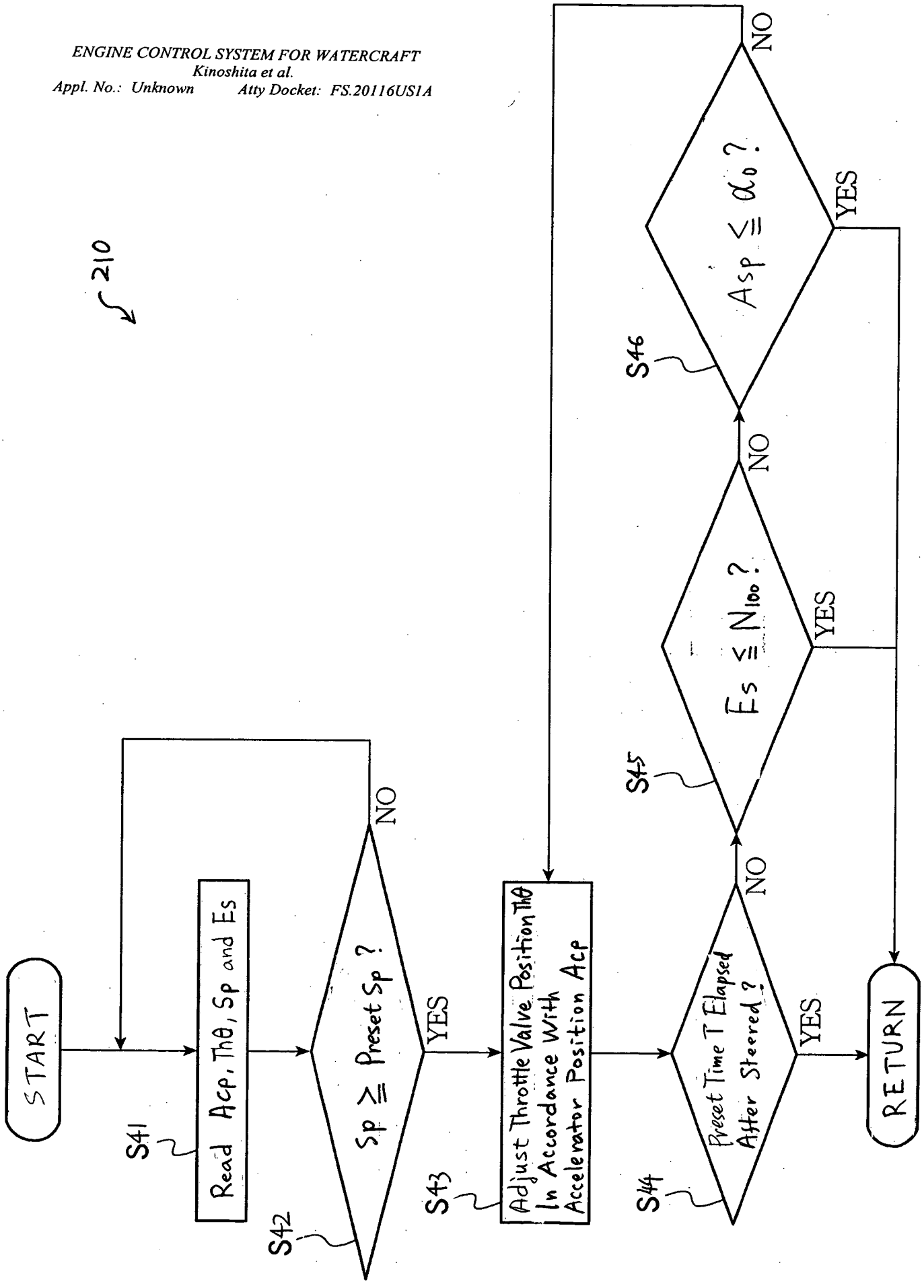
210
START
S41
Read Acp, Thθ, Sp and Es
S42
Sp ≧ Preset Sp ?
NO
YES
S43
Adjust Throttle Valve Position Thθ In Accordance With Accelerator Position Acp
S44
Preset Time T Elapsed After Steered ?
NO
YES
S45
Es ≦ N100 ?
NO
YES
S46
Asp ≦ α0 ?
NO
YES
RETURN

FIGURE 17

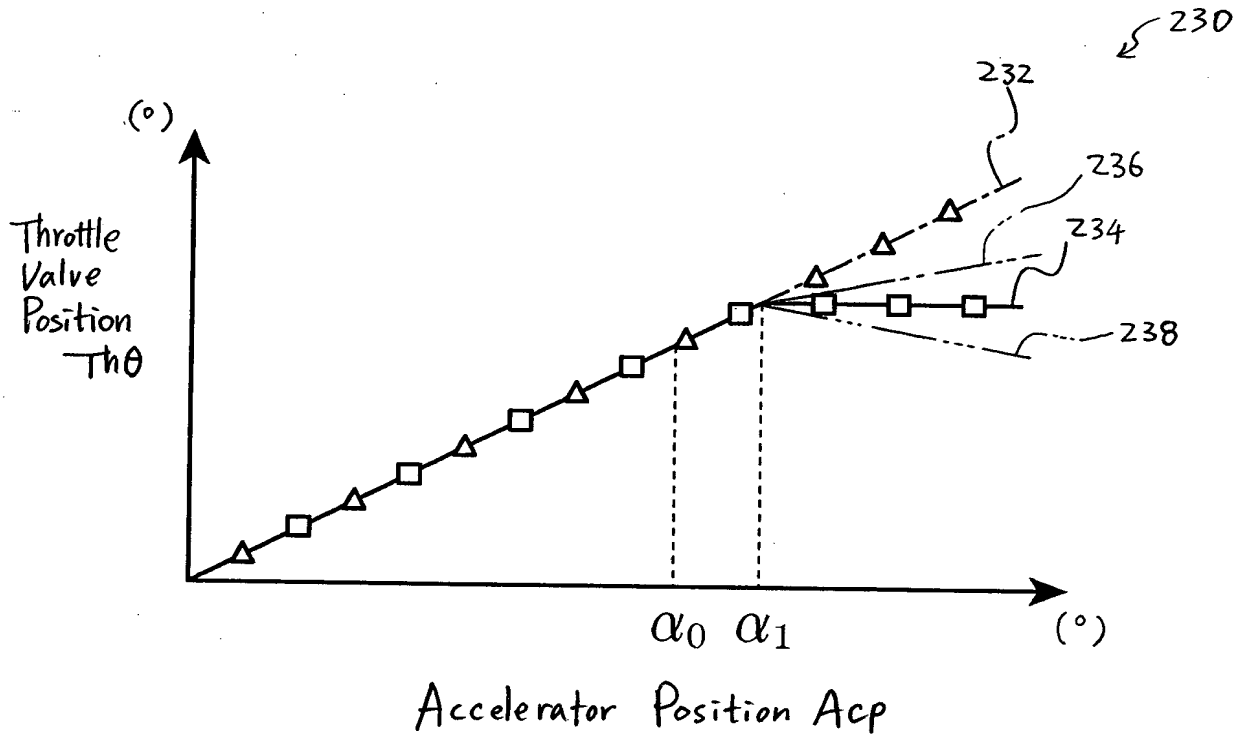
230
232
236
234
238
(°)
Throttle Valve Position Thθ
α_0 α_1
(°)
Accelerator Position Acp

FIGURE 18